**DEPARTMENT OF TRANSPORTATION**
**FEDERAL AVIATION ADMINISTRATION**

A35NM
Revision 1
Heavylift Helicopters Inc.
C-130B
August 6, 2002

# TYPE CERTIFICATE DATA SHEET NO. A35NM

This data sheet which is a part of Type Certificate No. A35NM prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

| | |
|---|---|
| Type Certificate Holder | Heavylift Helicopters Inc.<br>19378 Central Road<br>Apple Valley, CA 92307 |
| Type Certificate Holder Record: | Hemet Valley Flying Service transferred TC A35NM to Heavylift Helicopters Inc. on August 6, 2002 |

## I. Model C-130B (Restricted Category) Approved December 24, 1990

**Engines**

4 Allison turbo-prop T56-A7 or T56-A7-A or 501-D22

**Fuel**

Commercial aviation turbine fuels conforming to ASTM Specification No. D 1655-59T, types Jet B, Jet A-1, or Jet A, or commercial equivalents of MIL-J-5624, grade JP-4 or JP-5.

**Lubricating Oil**

Synthetic oil conforming to Allison Specification EMS-35 or MIL-L-7808.

**Engine Limits**

Static, Standard Day, Sea Level:

| | Turbine Inlet Temperature | Torque | Oil Temp |
|---|---|---|---|
| Take-off (5 minutes) | 977°C | 19,600 in lb. | 40°C - 100°C |
| Maximum Continuous | 932°C | 18,000 in lb. | 60°C - 85°C |

Rated Speed: 100% - 13,820 erpm

The maximum allowable power as measured by the torque meter is 19,600 in lb. for take-off.

**Propeller and Propeller Limits**

4 Hamilton Standard hydromatic propellers

| | | |
|---|---|---|
| 54H60-63 | Blade | A-7081B-2 |
| 54H60-97 | | A-7081B-2 |

Diameter 13 ft. 6 in.
2% reduction allowable for repair

Single rotation, four blade assembly with governing speed setting 1020 prpm (13,820 erpm)

Propeller assembly is complete with spinner, feathering and reversing provisions, constant speed control, negative torque control, synchrophaser, and electrical ice control.

Blade Angles

| | |
|---|---|
| Feather | 92.5 ± 0.20° (a) (b) |
| Low-pitch stop (min. flt. idle) | 21.00 ± 0.50° (a) |
| Ground Idle | 10.0° |
| Reverse | -6.0° ± 1.0° (b) |

(a) Propeller blade angles are measured at the blade 42 inch station with the propeller on a test post under conditions established by the applicable Hamilton Standard Maintenance Manual.

(b) Propeller blade angles are indicated on the back-up valve housing under conditions established in the applicable Model C-130B Maintenance Manual.

Propeller Oil: MIL-H-5606B

Airspeed Limits

| | |
|---|---|
| $V_{MO}$ (Maximum operating) | See Fig. 5-4 of T.O. 1C-130B-1 |
| $V_A$ (Maneuvering) | See Fig. 5-4 of T.O. 1C-130B-1 |
| $V_B$ (Turbulent air penetration) | 65 knots above power off stall speed but not to exceed 180 knots IAS. Fig. 6-1, T.O. 1C-130B-1 shows stall speeds as a function of gross weight. |
| $V_{FE}$ (Take-off & approach 50%) | 183k |
| $V_{FE}$ (Landing 100%) | 145k |
| $V_{LO}$ (Landing gear operation) | 168k |
| $V_{LE}$ (Landing gear extended) | 168k |
| $V_{LL}$ (Landing light extended) | 168k |

Heated Windshield Limitations: If electric windshield heat is operative, it must be used for all flight operations. Operation without electric windshield heat, is permissible provided (1) the airplane is not flown in known icing conditions and (2) the maximum speed limit below 10,000 ft is 187 KCAS.

Weight & C.G. Limits (gear up or down)

| Condition | Wt./Lbs. | Most FWD (c.g.) | | Most Aft | |
|---|---|---|---|---|---|
| | | % MAC | F.S. | % MAC | F.S. |
| Takeoff | 135,000 | 20.8 | 521.6 | 30.0 | 536.8 |
| Landing | 118,000 | 18.6 | 518.0 | 30.0 | 536.8 |
| Zero Fuel | 105,000 | 16.1 | 513.9 | 29.2 | 535.4 |

Reference USAF T.O. 1C-130B-1.

Datum: Fuselage Station 94.0 W.L. 142.98, BL 0 (NAS 221 screw head on bottom of forward fuselage, 71.0” forward of center line of nose gear strut.)

MAC: 164.5”, leading edge MAC, F.S. 487.4

Leveling Means: Provisions for leveling by plumb line are installed in the cargo compartment on the left side of approximately F.S. 637. A plumb line support bracket is located on the fuselage side panel at approximately W.L. 252, B.L. 64L, and a leveling plate is located on top of the cargo floor curb at approximately W.L. 150, B.L. 64L.

Minimum Crew: Three (3) - Pilot, Co-Pilot, and Flight Engineer

Passengers: None, except for essential crew as defined in FAR 91.39.

Cargo Compartment

| | |
|---|---|
| Length | 40 ft. |
| Width | 9 ft. 11 1/2 in. |
| Height | 9 ft. |
| Usable volume | 3,780 cu. ft. |
| Maximum cargo | 35,000 lbs. |

Reference Loading Data for approved loading schedule: USAF T.O. 1C-130B-9, “Cargo Loading Handbook,” and Supplement No. 141, dated January 4, 1970.

Maximum Fuel Quantity

| Tank | Usable Fuel | Total Fuel | Arm (full) |
|---|---|---|---|
| 1 (outboard) | 8,710 lbs. | 8,775 lbs. | 544.9 |
| 2 (inboard) | 7,995 lbs. | 8,060 lbs. | 554.6 |
| 3 (inboard) | 7,995 lbs. | 8,060 lbs. | 554.6 |
| 4 (outboard) | 8,710 lbs. | 8,775 lbs. | 544.9 |
| Left Aux | 5,915 lbs. | 5,915 lbs. | 556.7 |
| Right Aux | 5,915 lbs. | 5,915 lbs. | 556.7 |
| Total | 45,240 lbs. | 45,500 lbs. | |

The above fuel weights are not to be exceeded. (Tank Volume may be calculated using fuel density of 6.5 lbs./gal.) Arm varies with fuel loading. Reference Loading Data in USAF T.O. 1C-130B-1.

See NOTE 2 for unusable fuel.

Oil Capacity

Four independent tanks, one in each nacelle above the engine (Arm 442.0). Capacity for each, 8 gallons usable, total 12 gallons. Capacity for all, 32 gallons usable, total 48 gallons.

See NOTE 2 for system oil.

Maximum Operating Altitude

32,000 ft

Other Operating Limitations

Aircraft shall be operated in compliance with the operating limitations specified in the following documents:

(1) USAF T.O. 1C-130B-1, dated June 1, 1989
(2) USAF T.O. 1C-130B-1-1, dated August 24, 1988

Control Surface Movements

| | | | Rigging Inst. Drawings |
|---|---|---|---|
| Rudder | 35° Right | 35° Left | 371951 |
| Elevator | 40° Up | 15° Down | 374429 |
| Ailerons | 25° Up | 15° Down | 356300 |
| Rudder Tab | 25° Right | 25° Left | 371951 |
| Elevator Tab | 6° Up | 25° Down | 374429 |
| Aileron Tab | 20° Up | 20° Down | 356300 |
| Wing Flap | 36° Down (100%) | | 372066 |

Serial Numbers Eligible

Surplus military C-130B airplanes that have been found to comply with the requirements of this data sheet.

Certification Basis

FAR 21.25 (a) (2) Restricted Category Forest and Wildlife Conservation

Production Basis

None - Prior to original certification of each aircraft, an FAA representative must perform an inspection for workmanship, materials, and conformity with the approved technical data. All applicable Technical Orders affecting airworthiness must be accomplished.

Equipment

The basic required equipment as prescribed in the applicable Airworthiness Regulations (See Certification Basis), must be installed in the aircraft for certification.

NOTE 1

This approval applies to:

A. Basic United States Air Force C-130B airplane with no major modifications except as required by Hemet Valley Flying Service Drawing List HVFS-130-DL-120 Revision NC, dated October 19, 1990, or later FAA approved revisions.

B. Airplane certified for the special purpose of Forest and Wildlife Conservation with the following limitations:

1. In addition to the operating limitations in this data sheet, area, economic, passenger, and other appropriate operating limitations in accordance with FAR 21.25 shall be shown on placards or listings accessible to the pilot.

2. The following placard is to be installed in clear view of the pilot:
"Restricted Category"
"The carriage of persons or property for compensation or hire is prohibited."
"This airplane must be operated as a restricted category airplane and in compliance with the operating limitations stated in USAF T.O. 1C-130B-1 Section V and in the form of placards, markings and manuals."

3. Carriage of hazardous materials is prohibited unless compliance is shown with the applicable regulations in the Code of Federal Regulations Title 49, Part 175 (See AC 21-17, pg. 2, para. 4. a.(3)).

NOTE 2

A. Current weight and balance report, including list of equipment included in certificated weight empty, and loading instructions when necessary must be in each aircraft at the time of original certification and at all times thereafter.

B. The location of the center of gravity for any gross weight configuration, determined from T.O. 1-1B-40, Handbook of Weight and Balance Data, must fall within the percent of the mean aerodynamic chord (MAC) shown on the Center of Gravity limitations Chart (figure 5-6). For information and method of calculating the airplane center of gravity, refer to T.O. 1C-130B-9, Cargo Loading Handbook and T.O. 1-1B-40, Handbook of Weight and Balance Data.

C. The weight of the system fuel and oil, as defined below, and hydraulic fluid must be included in the airplane empty weight.

System fuel: The weight of all fuel required to fill all lines and tanks up to the zero fuel point on the fuel gages in the level flight attitude.
Unusable (include drainable and trapped fuel):

| Tank | Lbs.* | Arm |
|---|---|---|
| 1 | 65 | 555.3 |
| 2 | 65 | 565.4 |
| 3 | 65 | 565.4 |
| 4 | 65 | 555.3 |
| Left Aux | 0 | |
| Right Aux | 0 | |
| TOTAL | 260 | |
| Trapped or line fuel | 149 | 563.5 |

*This column includes 41 lbs. of fuel (trapped in lines) distributed to each tank at 5 lbs. per tank.

System Oil: The weight of oil remaining in the engine, lines, and tanks after subtracting the usable oil from the total capacity. Total: 221 lbs., Arm 442.0

D. Fuel Loading and Usage

1. Fuel must be loaded and used to provide compliance with the "Fuel Unbalance" limitation contained in USAF T.O. 1C-130B-1. Refer to USAF T.O. 1C-130B-1 for normal fuel management procedures.

2. Phillips fuel additive PFA-55MB may be used in concentrations not to exceed 0.15 percent by volume. No fuel system anti-icing credit is allowed.

NOTE 3

The following documents are required for the Model C-130B:

(a) USAF T.O. 1C-130B-1, dated June 1, 1989 "Flight Manual".

(b) USAF T.O. 1C-130B-1-1, dated August 24, 1988.

(c) USAF T.O. 1C-130B-9, "Cargo Loading Handbook" and Supplement No. 141 dated January 4, 1990.

(d) USAF T.O. 1-1B-40, "Handbook of Weight and Balance Data".

(e) USAF T.O. 1C-130B-5, dated January 31, 1973 and Supplements through February 1, 1990.

NOTE 4

The aircraft must be serviced and maintained in accordance with maintenance manuals T.O. 1C-130A-2-1 through 1C-130A-2-13.

FAA airworthiness directives for the Hamilton Standard 54H60 series propellers must be reviewed for applicability and complied with accordingly. Compliance with applicable Time Compliance Technical Orders for the aircraft and engines must be shown.

NOTE 5

Prior to civil airworthiness certification, Hemet Valley Flying Service must show that the following have been accomplished:

(a) Modification in accordance with FAA approved Hemet Valley Master Drawing List HVFS-130-DL-120 dated October 19, 1990.

(b) Compliance with Engine truss mount repairs in Lockheed-Georgia Service Bulletin 82-153, dated December 1, 1966.

(c) Compliance with all USAF Technical Orders which affect airworthiness.

(d) Inspect all fuel tanks for sealant deterioration and repair as necessary.

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